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Seeds of Corruption

Do Market Institutions Matter?

Harry G. Broadman
Francesca Recanatini

Economists in the field of industrial organization, antitrust, and regulation have long recognized certain factors as potent determinants of opportunistic behavior, corruption, and "capture" of government officials. Only now are these relationships becoming conventional wisdom among specialists in economies in transition.

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Summary findings

Ten years into the transition, corruption is so pervasive that it could jeopardize the best-intentioned reform efforts. Broadman and Recanatini present an analytical framework for examining the role market institutions play in rent-seeking and illicit behavior. Using recently available data on the incidence of corruption and on institutional development, they provide preliminary evidence on the link between the development of market institutions and incentives for corruption.

Virtually all of the indicators they examine appear to be important, but three are statistically significant:

- The intensity of barriers to the entry of new business.
- The effectiveness of the legal system.
- The efficacy and competitiveness of services provided by infrastructure monopolies.

The main lesson emerging from their analysis: a well established system of market institutions — clear and transparent rules, fully functioning checks and balances (including strong enforcement mechanisms), and a robust competitive environment — reduces opportunities for rent-seeking and hence incentives for corruption.

Both the design and effective implementation of such measures are important if a market system is to be effective. It is not enough, for example, to enact first-rate laws if they are not enforced.

The local political economy greatly affects whether a given policy reform will curtail corruption. Especially important are the following factors in the political economy:

- The credibility of the government's commitment to carrying out announced reforms.
- The degree to which government officials are captured by the entities they regulate or oversee.
- The stability of the government itself.
- The political power of entrenched vested interests.

Economists in the field of industrial organization, antitrust, and regulation have long recognized these factors as potent determinants of opportunistic behavior, corruption, and "capture" of government officials. Only now are they becoming conventional wisdom among specialists in economies in transition.

This paper — a product of the Poverty Reduction and Economic Management Sector Unit, Europe and Central Asia Region — is part of a larger effort in the region to analyze the determinants of corruption and develop remedies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sandra Craig, room H4-166, telephone 202-473-3160, fax 202-522-2753, email address scraig@worldbank.org. Policy Research Working Papers are also posted on the Web at www.worldbank.org/research/workingpapers. The authors may be contacted at hbroadman@worldbank.org or frecanatini@worldbank.org. June 2000. (31 pages)

SEEDS OF CORRUPTION
Do Market Institutions Matter?

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INTRODUCTION

In recent years the fight against corruption has become a key element in the policy agenda of many governments and international development agencies. As emphasized by a growing literature, corruption affects growth and investment, making its eradication a fundamental challenge for the long-term development of many countries (among others, see Mauro, 1995; Bardhan, 1997; Kaufmann et al., 1999a; Wei, 1999).

The causes and origins of corruption, however, are less clear and less systematically investigated, with few empirical studies on the nature and extent of the determinants of corruption available.[1] Despite the limited evidence on the causes of corruption, researchers and policy-makers agree that corruption thrives in environments plagued by institutional deficiencies and non-transparent regulations (World Bank, 1997a).[2] Thus, it is to be expected that incentives for corruption would emerge especially during periods of systemic regime change, such as for the countries making the transition from a planned to a market economy.

Ten years into the transition process, corruption is now recognized to be a pervasive phenomenon that can seriously jeopardize the best intentioned reform efforts. Because of the complex and deep political economy dynamics surrounding the process transition economies are undergoing—fundamentally replacing entrenched policy frameworks and vested interests regulated by a regime of command and control with new policy structures and institutions governed by market incentives—it is essential for policy-makers to understand the causes of corruption.

This paper develops an analytical framework for examining the role basic market institutions play as determinants of rent-seeking and illicit behavior in transition economies. Using data only recently available on the incidence of corruption and institutional development in such economies, we provide some preliminary evidence on the linkage between the development of market institutions and incentives for corruption. In addition, we explore the relative roles of different market institutions on corruption.

Although the complexity of the issues and the limited data available call for caution, our cross-country exploration provides important indicative results. Utilizing various indicators for different dimensions of market institutions in transition economies based on our analytical framework, and after controlling for other factors that may affect corruption suggested in the literature, we find empirically that these institutional indicators are systemically associated with the incidence of corruption in a broad set of transition economies. While virtually all of the indicators we examine appear to be important, three emerge as especially statistically significant: the intensity of barriers to new business entry, the effectiveness of the legal system and the efficacy and competitiveness of services provided by infrastructure monopolies.

The main lesson from our analysis is that a well-established system of market institutions—one characterized by clear and transparent rules, fully functioning checks and balances, including strong enforcement mechanisms, and a robust competitive environment—reduces rent-seeking opportunities and, in turn, the incentives for corruption. Our empirical investigation points to the

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[1] Exceptions are Ades and Di Tella (1999), which explores the link between corruption and degree of foreign competition; and Treisman (1999), which analyzes the effect of historical and cultural traditions, economic development and political institutions on corruption..

[2] Klitgaard (1996) has attempted to formalize this intuition introducing an interesting, yet simple model to explain corruption: C(corruption) = M(monopoly power) + D (discretion) – A(accountability)
i.e corruption depends on the amount of monopoly power and discretionary power that officials exercise and the degree to which they are held accountable for their actions.

importance of both the *design* and *effective implementation* of such measures to promote the establishment of an effective market system; in other words, it is not enough, for example, to simply enact first class laws if they are not enforced. In this regard, the dynamics engendered by the tensions in a country's political economy regime play a crucial role in determining the extent to which implementation of a given policy reform will be successful in curtailing corruption. Indeed, throughout our analysis we emphasize the importance of political economy factors—the credibility and commitment of government to carry out announced reforms, the degree to which government officials are captured by the entities they regulate/oversee, the stability of the government itself, and the political power of entrenched vested interests. These factors have long been recognized as potent determinants of opportunistic behavior and corruption by economists in the field of industrial organization, antitrust and regulation; only now are they becoming conventional wisdom among specialists in economies in transition.[3]

The structure of the paper is as follows. In the next five sections we outline the characteristics of a particular set of economic reforms to establish basic market institutions in economies in transition. Specifically we focus on: (i) price and production liberalization; (ii) policies to engender competition among enterprises; (iii) regulatory reform of infrastructure monopolies; (iv) corporate governance reforms; and (v) openness to foreign trade and direct investment. Although the five reform areas are described separately, our analytical framework points to the need for policy makers to recognize there are significant interactions and synergies across these reforms, and that policies need to be designed and implemented in an *integrated* fashion to be effective in reducing incentives for corruption. In the five sections we present basic graphical/bivariate empirical evidence on the degree of implementation of each type of institutional reform and the incidence of corruption in a set of transition countries. In the sixth section, using the same set of transition economies we present the results of multivariate statistical analysis, which helps shed light on the relative importance of each institutional reform in explaining cross-country differences in the incidence of corruption. The final section concludes with suggestions for strengthening and expanding research on this issue.

1. PRICE AND PRODUCTION LIBERALIZATION

Price liberalization reforms are powerful tools to curb rent-seeking and corruption since they imply the reduction of discretion and distortions in the allocation of resources in a country and promote efficiency. In particular, the application of market-determined prices and production decisions:

(i) engenders self-regulating, atomistic discipline on producers to behave competitively, where prices are cost-based with little discretion exercised and

(ii) reduces scope of opportunities for government intervention/discretion in the supply-demand equilibration process; imposition of 'hard budget constraints' is a critical pressure point throughout a country's market system.

But poorly designed and inadequately implemented price liberalization reforms may create more incentives for corruption, since they may serve the vested interests of an elite class. It is key in fact to focus on the design and the implementation of price and production liberalization to understand its link with corruption.

[3] For a recent analysis of the role of the political economy conditions in explaining the reform process, see EBRD (1999).

On one hand, liberalization reforms reduce corruption only if they facilitate the creation of a transparent mechanism for the allocation of resources. If the price and production liberalization processes themselves are *not transparent*, for example, or there is *unevenness* in the application of liberalization (subsidies are eliminated in certain sectors but maintained for others), then politicians and bureaucrats enjoy greater discretionary power, increasing the possibility for abuses and corruption. Government follow-through on announced liberalization is critical. Comprehensive price liberalization reforms, approved by government but not effectively implemented or credibly launched, create in fact more incentives for abuse and illicit behavior.

A closer look at the recent experience of some transition countries supports the need for carefully designed and effectively implemented price and production liberalization reforms as a powerful tool to reduce corruption. Table 1 illustrates the degree of corruption existing in these countries through two different indices of corruption: the Corruption Perception Index (CPI) prepared by Transparency International[4], and the Index of Graft (IG) calculated by Kaufmann, Kraay and Zoido-Lobaton[5] (1999). Tables 2 and 3 present various summary indicators of progress made by 26 transition countries in the reform of basic market institutions along several dimensions.

The simple snap-shot picture of the transition process depicted by these tables provides us with evidence of the link between corruption and the extent to which the reform of market institutions have been carried out. The main lesson we can derive from these data is that countries that have systemically liberalized prices and production decisions, applied hard budget constraints, and eliminated or significantly reduced subsidies[6] in a uniform, transparent manner have substantially reduced the incentives for corruption. On the other hand, where any of these reforms have not been introduced or poorly implemented, we observe a growing incidence of corruption.

Consider, for example, the degree of corruption in Poland and Hungary versus Russia and Belarus. In Russia and Belarus, prices are still controlled for several important product categories and State procurement at non-market prices remains substantial, as summarized by the EBRD price liberalization score of 1.7. At the same time, both economies face a fairly high degree of corruption. On the other hand, in Poland and Hungary, two countries experiencing a much lower degree of corruption, the price liberalization process has been more comprehensive, and substantial progress has been made in phasing out non-competitive State procurement.

Similar considerations can be derived by examining the relationship between the degree of corruption and the presence of soft budget constraints and arrears, described in Table 3 and Figures 1 and 2. Countries where firms' enjoyment of softer budget constraints and arrears is a more common practice are associated with higher levels of corruption[7]. In particular, in the Baltic

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[4] The CPI relates to perceptions of the degree of corruption as seen by business people, risk analysts and the general public, and is compiled using information from up to 12 individual surveys. The values reported are calculated for 1999 and range between 0 (highly corrupted environment) and 10 (not corrupted).

[5] This index is derived using an unobserved components model and data from 12 different sources. The index ranges from –2.5 (highly corrupted) to 2.5 (not corrupted).

[6] The analysis of the change in budgetary subsidies does not seem to corroborate this hypothesis, as the comparison between the case of Azerbaijan and Estonia (or Slovenia) may suggest. Between 1994 and 1997 budgetary subsidies in Azerbaijan decreased from 5.4% to 0.7% of the GDP. Over the same period of time, subsidies in Estonia went from 0.9% to 0.3% of the GDP. Corruption is however much less endemic in Estonia than in Azerbaijan. This apparent contradiction simply highlights the importance of including in our measures of subsidies estimates for implicit subsidies and cross-subsidies.

[7] In all the diagrams presented throughout this work we choose to use the CPI index as our measure of corruption existing in a particular country. It is important to stress that this choice does not affect qualitatively our results since the two indices are highly correlated. Examining our diagrams, the reader should also keep in mind that a lower values of this index describes an economy in which the extent of corruption is more pervasive.

countries, arrears and soft budget constraints are not a feasible option for firms. This more disciplined business environment has reduced the incentives for corruption, as indicated by the CPI score for these countries. On the other hand, countries like Georgia or Azerbaijan, where firms are able to resort to these practices, have been hindered by widespread corruption.

This preliminary evidence shows that the liberalization of prices and the application of hard budget constraints are clear reform priorities to create an enabling environment for market institutions and legal frameworks to take root and thus set strong signals for combating corruption and to engender investment and growth. The transition process of course necessitates dealing with inherited social burdens carefully and with sensitivity, and this should be done through transparent means-tested or targeted income support. But letting market forces set relative prices is an absolute critical prerequisite.

We emphasize, however, that success in implementation of the aforementioned reforms relies on additional factors, namely the existence of strong political will at the highest levels of government; the presence of competitively structured industries, bolstered by conditions facilitating new entrants; and openness to international trade and foreign direct investment. Weakness in any of these areas will undermine the impact price and production liberalization will have on reducing incentives for corruption and may well become counter-productive.

2. COMPETITION POLICY (NON-UTILITY SECTOR)

The industrial sectors that many formerly planned economies inherited at the beginning of the transition were not competitively structured, often characterized by large plants and companies relative to the actual (market) demand, resulting in diseconomies of scale and scope. The great emphasis placed on heavy industrialization at the expense of underdeveloped services during central planning led to the creation of this highly concentrated industrial structure. In addition, the central planning system actively promoted regional autarky and self-sufficiency, resulting in artificially geographically located industries and "duplication of facilities". Because of socialist objectives, these plants were designed to produce product mixes that were not necessarily in line with market preferences. Their production decisions were dictated by state orders and/or military needs, rather than by supply and demand forces. All these factors have contributed to an anti-competitive structural inheritance for a wide array of transition countries; two prominent examples are China and Russia.[8]

Such a distorted business structure can easily foster corruption unless competitive restructuring reforms and checks and balances are put in place. Allowing for the free play of competitive forces is essential if firms are to have little (if any) direct effect on market prices and prices are set in line with costs. Competitive discipline—along with price and production liberalization—is key to reducing discretionary behavior by both business and government officials, especially in the latter case where, within state owned enterprises (SOEs) there is weak separation between the interests of business and government (see the section below on corporate governance). Competition also provides for an efficient allocation and use of resources, and improvements and innovations in product and service quality.

In the main, where business environments are poorly structured competitively, opportunities for rent-seeking behavior can arise from two different but interactive elements that promote

[8] For a discussion of structural conditions for competition in China and Russia, see Broadman (1995) and Broadman (in press), respectively.

discretion and special interests. On the one hand, barriers to new private sector entrants that otherwise would exert competitive discipline and reduce protection prolong the discretionary power of the old business elite and hamper the restructuring process. On the other hand, seller concentration among incumbent firms fosters anti-competitive conduct and collusion resulting in inefficient production and labor hiring decisions, price distortions, and poor product quality. These two features of market structure are closely related to the political economy interests driven by the government capture – the impact of firm's activities on government decision-making. Together, these factors create strong resistance to change and the introduction of competitive forces, thus facilitating the emergence of corruption.

It is central for transition economies to implement an effective competition policy regime in order curb corruption. Such a policy framework should be characterized by pro-active, transparent and even-handed competitive restructuring of *incumbent firms*, which allows for horizontal and vertical divestiture of integrated firms operating beyond the point of scale economies and the exit of insolvent and value-subtracting firms bottling up assets that otherwise can be deployed to higher values in use. In addition, it should create a clear rules-based enabling environment encompassing a level "playing field" for new business *entrants*; and a set of effectively imposed *penalties for anti-competitive conduct*, such as collusion, anti-competitive mergers, price fixing and/or predatory pricing, and false advertising.

Table 2 presents an index that summarizes the degree to which competition policy reforms have been introduced in each of 26 transition economies. As can be seen, there is wide variation: a value of 1, scored by countries such as Tajikistan or Turkmenistan, describes an economy in which competition policy legislation and institutions are very undeveloped; and a value of 3 describes countries with well developed competition policy instruments, such as strong safeguards against abuse of market power and prevention of entry.

In Figures 3 and 4 we present evidence on the extent to which a more competitive and transparent environment reduces the incentives for rent-seeking behavior and corruption. In particular, we consider the relationship between barriers to entry and exit and the degree of corruption existing in a country. The figures suggest the existence of a positive relationship: the greater the barriers to entry and exit faced by firms, and therefore the greater the distortions existing in the competitive environment, the more widespread is corruption.[9]

A similar relationship exists between corruption and the extensiveness and the effectiveness of generic (i) commercial and financial laws and regulations, and (ii) the infrastructure for enforcement of such institutions, such as the development of the judiciary. In Table 2 we present indices across countries that describe the extent and soundness of these factors, and Figures 5 and 6 offer some evidence of the existence of a positive association between the degree of corruption and the lack of development and/or clarity of such systems.

Consider for example the cases of Georgia and Belarus, which score poorly in these indices. Their low values reflect a situation in which company laws are limited in scope and commercial legal rules are unclear and sometimes contradictory.[10] This in turn leads to greater opportunities for

[9] The intensity of entry barriers is a composite of the six main barriers to entry and expansion as perceived by start-ups. The intensity of exit barriers instead is a soft budget index composed of subsidies and barter measures. For details on their construction, see Dutz and Vagliasindi (1999)

[10] An equally interesting relationship to explore is the one between corruption and the degree of legal effectiveness. Many transition economies have introduced a number of commercial laws and regulations in recent years, as the EBRD scores show. The general effectiveness of the legal system and courts and a persistent gap between introduction and enforcement of the laws create greater incentives for corruption. At this stage, however, very limited data on effectiveness of legal systems is available.

opportunistic behavior. High index values, in contrast, describe economies endowed with comprehensive legislation and where the administrative and judicial support of the law is reasonably adequate. This is the case of Slovenia and Hungary; correspondingly, the phenomenon of corruption is less pervasive in these two countries.

The recent experiences of transition countries provide us with some valuable lessons as to which are the most effective competition policy frameworks. In particular, the following characteristics are common to the most effective competition policy regimes:

(i) *strong, international best practice competition policy laws* (demonstrating "buy-in" from the legislature);

(ii) *effective competition executive agencies* that (i) have "political teeth" in the Cabinet and are independent from line ministries; (ii) have strong central-local networks to combat regulatory capture and protection of local champions by local officials; (iii) hold public hearings with a transparent appeals process; and (iv) impose penalties matching harm inflicted;

(iii) systemic use of *rules-based, streamlined,* and *transparent business registration and licensing procedures* ("one stop" shops) for domestic as well as for foreign direct investment;[11]

(iv) *strong judiciaries* with adequately trained judges and an effective bailiff system to enforce judgements; and

(v) *effective bankruptcy* legal frameworks and *enforcement mechanisms*, including both in-court and out-of-court procedures that engender the protection of creditors' rights.

To be sure, this is a formidable agenda and priorities must be set. Our experience suggests that the first priority is to establish an environment to facilitate new firm entry and to create the legal and enforcement frameworks for penalizing anti-competitive behavior by incumbents. The competitive restructuring of large state enterprises is a resource-intensive activity and should proceed only on a very selective, case-by-case basis and where there is a compelling "public interest" to do so.

The successful restructuring of the competitive environment and the effective implementation of a transparent legal system, however, will face many obstacles. As in the case of price liberalization, political economy dynamics will surely affect the rapidity and completeness of implementation of competition policy reforms. Clearly the political clout of government leaders is key to overcome the pressure toward the *status quo* of special interests and state capture. By the same token, a critical determinant of success of competition policy reform are the initial conditions in the country. Economies with large-scale one-company towns and/or a large military industrial complex enterprises face special challenges of designing policies that promote competition but at the same time preserve social stability or promote defense conversion to civilian technologies if commercially viable.

3. REFORM OF INFRASTRUCTURE MONOPOLIES

At the beginning of the transition process, it was clear that the existing infrastructure networks, created under the regime of central planning, needed extensive restructuring to meet the

[11] The case of Ukraine is telling on the importance of streamlined business rules to reduce incentives for corruption. This country has repeatedly promoted the fight against corruption. At the same time, economic regulations continue to emerge fostering illicit behavior. Recently, for example, a provincial government introduced a decree that any firm selling goods within its 14 counties must have a special trading permit for such intra-province transactions (Kaufmann, 1997)

demands and standards of a market economy system. Demand for these services had been greatly distorted both by artificially low prices that bore little relation to cost and by cross-subsidies. In addition, most transition economies inherited state owned large-scale utilities—including but not limited to electric power, gas, oil, telecom, and transport—where there is effectively little separation between government and business. The distortions in prices and output, the heavy influence of government on what should have been exclusively commercial decisions, the concentration of ownership, and the decay of the physical networks, all have worked to create an environment ripe for corruption, manifested though the ways rates are set; the awarding of franchise agreements; scope and quality of service offerings; barter and non-payments; and disposition of profits.

In most countries worldwide, due to changes in markets and technology, many (but not all) previously "natural" monopolies are no longer so, and the socially optimal industrial structure is increasingly competitive, with unbundled service offerings and open entry and exit.[12] In transition economies, there is wide variation in the recognition that the market and technological fundamentals of infrastructure services have changed. In Table 4 we present a composite index—"Infrastructure Rating"—that synthesizes the extent of the infrastructure restructuring process that has taken place in most of these countries. The table also contains measures that describe the amount of restructuring in individual infrastructure monopoly sectors.

Uzbekistan and Kyrgyzstan, for example, appear to have made very little progress in dismantling the old monolithic structures and in promoting commercialization and private sector involvement in infrastructure monopolies.[13] On the other side of the spectrum, Estonia, Hungary and Poland have greatly liberalized the provision of these services and have strongly encouraged regulatory reform and institutional development.

Our experience indicates that in utility markets where "natural" monopoly conditions do not or no longer exist, to reduce the potential incentives for corruption it is clear that a priority is to de-monopolize and privatize the existing networks and introduce competitive forces. In remaining utility markets, where underlying technologies give rise to large economies of scale and scope relative to market demand and thus natural monopoly (or natural oligopoly) conditions prevail, it is essential to establish an independent, transparent and publicly accountable regulatory oversight regime.

Of course, effective reformation and restructuring of the infrastructure monopoly sectors present a fundamental political economy challenge for transition economy governments. These monopolies are typically bottleneck facilities with huge financial and natural resource endowments at their disposal, usually comprising nationwide networks. They are often run by the most powerful of entrenched interests and can effectively oppose competitive pressure and arms-length oversight. Untangling the web of barter, offsets and non-payments between government agencies—the consumers—and utilities—their suppliers—makes this reform challenge even more difficult.[14]

The impact of increased commercialization and competition in infrastructure monopoly sectors on the extent of corruption in transition economies has been profound, as the positive trend in Figure 7 highlights.[15] The data suggest that where incentives for corruption have been reduced

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[12] There are excepted segments where infrastructure markets cannot support the competitive provision of service, e.g., local distribution of natural gas, water, sewage.

[13] For an assessment of regulatory reform in Uzbekistan see Broadman (2000).

[14] For an analysis of barter, demonetization and non-payments in Russia, see Hendley, Ickes, and Ryterman (1999).

[15] Lower values of the index of corruption indicate a wider diffusion of this phenomenon

through divestiture or de-monopolization of incumbent infrastructure monopolies and providing for competitive entry, the severity of corruption is much smaller—for example, Poland and Hungry.

Similarly, success in reducing the extent of corruption has been achieved where stringent rules against barter and non-payments have been enforced, as has been the case in Estonia and Lithuania (see Figures 1 and 2). In these countries the tolerance toward arrears, both tax arrears and payment arrears to state-owned utilities, is very low, although direct subsidies have not been removed completely (Table 3). This policy choice – to use direct rather than implicit subsidies to support firms' restructuring activities – reflects the intention of these governments to create more transparent market-based incentives for infrastructure monopolies, and this has translated into a less corrupt business environment.

The establishment of *independent* regulatory agencies—both at the central and (most critically) at the local level, where regulatory capture is most pronounced is key. Where such institutions have been created to operate with transparency (public hearings), simplicity (well-defined rules-based principles), and accountability (election of regulators or term limitations), the payoffs in terms of reduced corruption have been great. The indices reported in Tables 2 and 4 describe the progress made by different countries in designing and implementing effective legal and regulatory systems. Countries like Russia and Uzbekistan, where there is nascent implementation of effective regulatory regimes incorporating strong independent regulators at the local levels, have shown to be fertile environments for rent-seeking behavior and corruption.

As the above evidence and discussion highlight, policy sequencing is a fundamental factor for the success of these reforms. In particular, the establishment of independent regulatory agencies and the enactment of legal frameworks are first order priorities. Indeed, privatization of incumbent utilities should proceed cautiously—if at all—until an effective regulatory regime has been established as well as the enabling environment for new entrants has been created. Privatizing utilities in the presence of insufficiently functioning market institutions will otherwise aggravate the existing problem by transforming a *government* monopoly into a *private* monopoly, yet with weak checks and balances.[16]

However, getting the sequencing "right" is only a necessary and not a sufficient condition for success in combating corruption in reform of infrastructure monopoly sectors: strong political will at the highest levels of government and in the legislature, as well as a judiciary willing to take on entrenched interests must also materialize. In addition, the newly established regulatory agencies must be committed to maintain independent rate-setting and other judgements in the face of political pressures and changes. Last, but not least, a key factor for the success in the restructuring of infrastructure monopolies is the existence of effectively trained staff in these agencies, since often the number of staff in the infrastructure monopolies will outweigh those charged with enforcement.

4. CORPORATE GOVERNANCE

When corporate governance structures and incentives – the rules and institutions that determine the extent to which managers act in the best interest of shareholders – are weak, the incentives for opportunistic behavior and corruption are often strong. This is especially true for firms with significant (or even complete) state ownership (SOEs)—a common feature of transition economies—where there is often little effective separation between government and business: in

[16] A good example is the case of the Russian natural gas producer Gazprom.

such firms, fundamental conflicts-of-interest are more likely to arise because of the tension between the decisions of managers, who are appointed by the government and thus naturally more inclined to protect workers and delay the restructuring process, and the interests of shareholders.

This conflict of interests and objectives between shareholders and managers is also present in privately held firms where there is widely dispersed ownership and thus separation of ownership and control.[17] With control delegated to professional managers, owners face a principal-agent problem: where there are weak checks and balances, such as ineffectual boards of directors or lack of independent financial audits, the shareholders (principals) cannot be assured that their interests are fully protected from those of the managers (agents). Conversely, in the case where share ownership is closely held with the main shareholder playing an active role in management ("insider control") but there are weak internal and external disciplines on corporate performance, such as a banking system that does not engender strong creditors' rights or require scrupulous payment of credit, deleterious outcomes and economic distortions can arise: unchecked insider control can lead to asset stripping, de-capitalization and corruption, seriously hampering the restructuring process. This can also create powerful interest groups against corporate governance reforms. This is the case in Russia, among other transition economies.[18]

Thus, both in the case of SOEs and privately held firms, an effective and sound corporate governance structure is key in anticipating and resolving potential conflicts of interests between managers and shareholders and reducing incentives for rent-seeking behavior and corruption.

For most transition economies, establishing effective corporate governance incentives and institutions is a medium-term challenge, intertwined with the establishment of a competitive business environment. Responding to this challenge necessitates implementation of a multi-prong set of measures. It requires building a transparent and sound legal framework, such as a company law and a bankruptcy law; it demands establishing a tradition of adherence to ethical standards; and it involves creating a system of checks and balances that engenders compliance to rules transparency and accountability. In addition, the political economy problems of implementing and achieving corporate governance reform in SOEs—especially where systemic, widespread privatization is not politically accepted—are often appreciable; resorting to hybrid measures can result in new, unanticipated contradictions as the Chinese and Uzbekistan experiences suggest.[19]

There is a wide array of corporate governance reforms that have proven effective in curbing both incentives and opportunities for corruption, as evidenced by the recent experience of transition. They include:

(i) the introduction of a company law that provides for effective boards of directors and share ownership disclosure requirements, including those pertaining to cross-holdings, so to increase transparency;

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[17] See La Porta R., Lopez-de-Silane F. and Shleifer A. (1998).

[18] See Broadman (1999a) and Radygin (1999).

[19] The Chinese approach to corporate governance reforms in SOEs has centered on creation of "state asset management companies" as well as use of a "dual-track" mechanism whereby traditional state-owned enterprises co-exist with collectively owned firms and an emerging private sector; see World Bank (1997) and Broadman (1996) and (1999b). In Uzbekistan, the focus has been on creation of state "associations", which are the old sector ministries; see Broadman (2000).

(ii) the establishment of strong penalties for insider trading and pyramid schemes, and management disqualification penalties (criminal in some cases) for gross abrogation of corporate 'articles of association', dereliction of duty, fraud or misrepresentation;

(iii) the appointment of 'outsiders' (non-managers) to boards of directors, non-state representatives on SOE boards and independent professionals managing state shares (reduced to passive minority status), as well as the introduction of staggered elections for boards of directors;

(iv) the establishment of an effective legal framework for the exercise of creditors' rights – including and especially those of banks—through use of in-court and out-of-court bankruptcy procedures;

(v) the introduction of regular, published independent audits of financial accounts based on standardized rules (IAS);

(vi) the creation of an effective policy framework that provides for the (credible threat of) competitive mergers and acquisitions in order to bring about a "market for corporate control".

(vii) the systematic use of professional "watchdog" agencies and reputational agents (credit rating agencies); and

(viii) the strong enforcement of ethical standards and conflict-of-interest laws especially as applicable to public officials.

An example of the empirical evidence on the linkage between the above-mentioned reforms and reduced incentives for corruption is portrayed in Figure 9. As previously indicated (Table 3), the design and the introduction of effective bankruptcy (insolvency) regimes has been achieved in a relatively few transition countries, such as Croatia and Estonia. Figure 9 shows that such countries experience low levels of corruption.[20] Most of the surveyed transition economies, however, receive a medium score: while their bankruptcy regimes are broadly adequate, they are in need of revisions and clarification. More importantly, the bankruptcy laws are not perceived as effectively enforced, mostly because of limited court capacity and lack of properly trained personnel; Russia is a case in point.[21] In such cases, the level of corruption can be appreciable. At one end of the spectrum there are countries, such as Ukraine and Georgia, which are perceived as having ineffectual bankruptcy legislation and which score very high in terms of corruption. The case of Georgia is especially of interest as it highlights the importance of removing obstacles to the *implementation* of laws. The Bankruptcy Law Index has declined for this country over the past two years.[22] Though Georgia's insolvency law was introduced in 1997 and cases have been processed, very few of these cases have been resolved, signaling weak effectiveness. Thus it is not surprising that all other things equal, there is a strong association between Georgia's relatively weak bankruptcy framework and its relatively high CPI score.

Another prominent example that corroborates the importance of the aforementioned corporate governance reforms in curtailing corruption is the case of Russia's financial and industrial groups (FIGs). Some of the core features of these banking-industrial holdings engender conflicts of

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[20] More surprisingly, Kyrgyzstan and Macedonia have received high marks for their insolvency laws (introduced in 1994 and 1998, respectively) and their implementation. This reflects the government efforts to improve the investment climate.

[21] The case of Russia deserves a separate discussion. A new bankruptcy law—greatly improved with respect the previous one—came into effect in March 1998. However, its implementation has been hampered by the lack of trained judicial staff and legal infrastructures. See Mirsky (1999).

[22] For an overview discussion of the development of bankruptcy laws and regulations in transition economies, see EBRD (1999).

interest, and thus facilitate rent-seeking behavior and corruption. The composition of the boards of directors of most of these groups, for example, are built less on principles of market-based checks and balance and meritocracy, and more on a system of personal affiliation and cadreship. There is extensive cross ownership of shares across FIGs, creating a complex web of inter-locking directorates with unclear lines of authority. In addition, these groups have established a system for the provision and allocation of internally-provided credit to control the activities of members, rather than rely on other (external) sources of credit that would serve an important due diligence and financial control function. It is also fairly common practice for FIGs to have access to the management of state shareholdings through trust management arrangements.[23]

To guarantee the sustained realization of corporate governance reforms, such initiatives must be paired with the introduction of a transparent and market-based regime for price and production setting, and one that engenders the play of competitive forces. While different transition countries have utilized corporate governance frameworks rooted in different legal traditions, giving rise to different "models" of corporate governance (Anglo; Germanic; Japanese; etc), the most of effective regimes are those that are based on commercial (or market-based) principles, with clear lines of authority, effective checks and balances and transparent accountability.

5. INTERNATIONAL TRADE AND FOREIGN DIRECT INVESTMENT POLICIES

The reduction of protectionist measures and the adherence to internationally accepted rules for international trade and foreign direct investment (FDI) provide for critical external discipline on firm behavior as well as that of public officials. This in turn reduces the incentives for corruption. For example, the pressure of international competition posed by imports engenders a healthy challenge to domestic firms to operate more efficiently. FDI is a potent tool for new entry: it not only creates powerful incentives for incumbent firms with market power to reduce prices to costs and improve product quality, but also engenders the transfer of advances in entrepreneurial talent and managerial skills.

Vested interests that have enjoyed trade protection and been able to capture rents often are politically powerful and possess an effective lobbying base, and thus resistant to trade and FDI reform. Wide variations in tariff schedules, an intricate systems for quotas, and the existence of tax or other special concessions for FDI are breeding grounds for rent-seeking behavior and corruption.[24]

The experience of many transition economies provides us with a list of measures, whose implementation is effective in reducing incentives for corruption. Consider for example the tariff structure. Whenever tariffs differ greatly across goods, the difference between them creates increased opportunities for customs officials to exercise discretion and to extracts rents from importers: officials may offer (or threaten) to misclassify goods in exchange of bribes. Thus, greater uniformity of tariff structures cuts down the incentives for corruption. Similar reasoning applies to duty exemptions or quotas; their existence invites opportunistic behavior by custom officials and

[23] See Perrotti and Gelfer (1998) and Radygin (1999).

[24] Gatti (1999) analyzes the link between corruption and trade tariffs, providing evidence that corruption is stronger the more diversified trade tariffs are. Tarr (1999) examines the case for tariff uniformity in Russia. Bergsman, Broadman and Drebentsov (1999) analyze Russia's FDI regime.

often creates pressure to protect the special interests of a few producers. Their elimination—or the transformation of quotas into tariffs—can reduce the possibility of rent-seeking behavior.

As for FDI, tax, duty and other concessions, including the creation of "special economic zones" or "priority investment programs" often are recipes for discretionary behavior by government officials and thus corruption. Moreover these measures generally do not engender more investment activity than what otherwise would take place and on net give rise to sizeable fiscal drains and therefore do not constitute sound policy. Dismantling them—or refraining from establishing them in the first place—is desirable. Similarly, the simplification of FDI "negative lists", which stipulate a country's sectors where FDI is either prohibited or limited, greatly reduces discretion and in turn opportunities for corruption.

More generally, the most effective reforms of FDI policy regimes have included steps to (i) grant non-discriminatory, "national treatment" to foreign investors for both right of establishment and post-establishment operations; (ii) prohibit the imposition of new, and the phase out of existing, trade-related investment measures (TRIMs), e.g., local content measures, export performance requirements, restrictions on use of foreign exchange and trade balancing requirements; (iii) provide freedom to foreign direct investment projects regarding all investment-related transfers, e.g., profits and royalties; (iv) provide for binding international arbitration for investor-State disputes; and (v) abide by international law standards for expropriation, i.e., expropriation only for a public purpose and with prompt, adequate and effective compensation.

Membership in the rules-based WTO can provide countries with perhaps the most potent set of institutional checks and balances in the international economic sphere and thus substantially reduce discretionary behavior and corruption with regard to international trade and foreign direct investment policies.

Table 2 provides a summary of the progress made in the areas of trade and FDI reform by most transition economies. Consider for example the cases of Uzbekistan and Russia. Both countries still have widespread import and export controls and limited access to foreign exchange. In addition, their tariff structures are quite complicated and not uniform. These elements have facilitated the emergence of corruption, as the CPI scores for these countries indicate (see Figure 10). In contrast, the countries in Central Europe and the Baltic region have liberalized trade and access to foreign exchange very early on in the transition process, and subsequently they have become (or are in the process of becoming) members of the WTO. Both the Czech Republic and Hungary, for example, became WTO members in January 1995, after having removed most of their trade distortions between 1991 and 1993. Lithuania and Estonia are committed to fulfill WTO accession obligations and become members in the near future. These political choices and the commitment to sustain them have reduced incentives for corruption. [25]

In between these two extremes are countries such as Bulgaria and Romania and most of the CIS, which have implemented more uneven and gradual trade liberalization policies, creating greater incentives for corruption (see Figure 10). Most of these countries introduced early on in the transition the aforementioned trade reforms. However, many of these governments were not able to sustain fully these reforms and some partially reversed them a few years later. The lack of clarity in government policies and the non-transparent business environment that has ensued have worked to

[25] The case of Kyrgyzstan, which has become a WTO member in 1998, highlights once more how clear regulations must be paired with an effective implementation to reduce corruption. The Trade System Index in fact is very high (4), as a reflection of the transparent system of custom tariffs introduced and its openness to international trade. Its implementation has however been slowed by the lack of a functioning administration. This has resulted in widespread corruption among custom officials.

limit inflows of FDI and have perpetrated inefficient behavior of domestic firms. This in turn has encouraged corruption.

Overall, to discourage rent-seeking and illicit behavior it is clearly beneficial to (i) phase out import and export restrictions, (ii) create a simpler and more uniform tariff system, and (iii) establish a transparent FDI policy regime. At the same time, (iv) the appropriate administrative institutions need to be created to effectively enforce these new policy frameworks. It is evident that to succeed in liberalizing the trade and FDI regimes governments need to be able and willing to hold in check pre-existing, powerful vested interests. Of course these reforms can come with sizeable social costs attached to them in the short-run, especially in terms of employment re-allocation or job losses. It is therefore important for governments to provide trade remedy measures to ease the transition costs that arise from international competition.

6. TESTING FOR CAUSALITY: SOME INITIAL RESULTS

We argued in the previous sections that lack of development of basic market institutions creates a fertile ground for discretionary behavior and corruption. In particular, we emphasized that certain elements of a fully functioning market system—atomistic pricing and an absence of implicit and explicit subsides; robust competition among incumbents and open entry for new rivals; independent regulatory regimes governing markets where natural monopoly (or natural oligopoly) market structures prevail; market-based corporate governance incentives and protection of well-defined shareholder rights; and openness to international trade and foreign direct investment—all help to reduce the incentives for corruption.

The basic data plots that we have presented (Figures 1-10) to support our arguments can be summarized through bivariate correlations between indices of institutional development and indices of corruption. Table 6 presents these bivariate correlations.[26] As indicated in the table's first row, there are statistically significant simple correlations between corruption and the institutional indices in virtually all cases; the exception is that the correlation between the soft budget constraint index and the corruption index is significant only at the 10 percent level.

But can we say something more about causality and the relative contribution of each factor in explaining corruption? We have begun to explore systematically this question through multivariate statistical analysis using the indices discussed in the previous sections. The existing, small literature on the determinants of corruption in *developed* and *developing* economies suggests that, in essence, corruption can be explained by the quality of the government of a country (as reflected by the country's level of economic development) and the quality of the country's political institutions.[27] In particular, it is typically posited that incentives for corruption and illegal activities are likely to be lower in countries more economically developed (measured by GDP per capita) and where there are greater democratic political processes and a strong independent press (measured by an index of democracy). In addition, it is also usually hypothesized that openness to foreign trade—especially to competition from imports—(measured by imports as percentage of GDP) reduces the potential rents of government officials, and, in turn, decreases incentives for corruption. To summarize, the literature on the determinants of corruption in *developed* and *developing* economies generally follows this type of model:

[26] The Graft Index is measured on scale of –2.5 to 2.5, with higher values corresponding to lower corruption. The results reported in Tables 6 and 7 were calculated using the inverse of the Graft Index, to make the results more intuitive.

[27] See Ades and Di Tella (1999), Treisman (1999), and Gatti (1999).

(1) *Corruption* $= f$ *(quality of government, quality of political institutions, openness to trade)*
$= b_1 + b_2$ *(GDP)* $+ b_3$ *(Index of democracy)* $+ b_4$ *(Imports/GDP)*

But in the case of *transition* economies, which, as we note above, are in the process of undergoing *fundamental* changes in basic institutional regimes, the empirical specification of this model is likely to be inadequate. In particular, the quality of government in transition countries is likely not to be fully captured by a measure of GDP. Arguably more than other types of countries, the quality of government in transition economies would seem to be a direct function of the types of basic market institutions on which we have been focusing. Put differently, while GDP may be a good gross proxy for quality of government, the underlying institutions that actually determine the quality of government would seem to be more direct proxies. The last column in Table 6 suggests this argument has some merit: GDP per capita is highly correlated with virtually all of the individual institutional indicators. Accordingly, this argues for substituting the various institutional variables described above for GDP per capita.

By the same token, the use of a measure of imports as a proxy for openness to foreign trade is also unlikely to be adequate. The linkages between trade and corruption are likely to be affected by activities related to a country's exports as well as to its imports. A better measure of these linkages is an indicator capturing the development and the degree of openness of the overall trade system.

Based on these considerations, we employ a model different from that specified in equation 1. In particular, as summarized in equation 2, our model employs the following variables: (i) a vector of institutional indicators measuring infrastructure development, entry barriers, soft budgets, legal effectiveness, and the bankruptcy regime ("Market Institution Indices"); (ii) an index of democratic development ("Democratic Reform Index");[28] and (iii) a trade system index ("Trade System Index"):

(2) *Corruption* $= f$ *(quality of government, quality of political institutions, openness to trade)*
$= b_1 + b_2$ *(Institutional indicators)* $+ b_3$ *(Index of democracy)* $+ b_4$ *(Trade system index)*

We know at the outset that this is a difficult task because our intuition tells us—and Table 6 confirms—that most of the institutional indicators available are correlated with each other. This creates, of course, potentially significant multicollinearity problems in the statistical estimation process, thus potentially weakening the results. Moreover, some of the institutional indices are likely to be endogenous to corruption: if it is true, for example, that a poorly functioning legal system causes corruption, it may also be the case that widespread corruption prevents the improvement of the legal system. Indeed, this "simultaneity problem" reflects precisely the dialectic posed by the political economy problem of state capture that we have been emphasizing throughout our discussion that makes implementation of corruption-curbing reforms so challenging. The standard statistical solution for this problem is the use of instrumental variables in multivariate regressions. Unfortunately, we are not able to find suitable individual "instruments" for our explanatory variables at this stage, in part because of the unavailability of appropriate data. Thus our estimation results are tainted by the possibility of endogeneity and cannot provide conclusive evidence on the direction of the causality between development of market institutions and incidence of corruption. Bearing in

[28] The Democratic Reform Index (DRI) by Freedom House International is used to capture the degree of political and democratic development. This index is the unweighted average of five separate ratings: political process, civil society, independent media, government and public administration and rule of law. It is calculated on a one-to-seven scale, with one representing the highest and seven the lowest level of progress.

mind these considerations, we have focused our initial efforts on running a series of OLS regressions, attempting to control for as many factors as possible that may affect corruption.

The first column of Table 7 describes the results of our OLS estimation[29] using the Market Institution Indices as explanatory variables, and the Democratic Reform Index and Trade System Index as control variables for the twenty-six transition economies under examination.[30] The results are somewhat striking: despite the limited number of observations and the relative large number of parameters we try to estimate, the coefficients on three of the Market Institution Indices are statistically significant; the remaining two have the correct sign, although they are not statistically significant (see below). The model explains almost 94 percent of the variation in corruption across the sample. The results suggest the following: The greater the barriers to entry, the greater the incentives for illegal behavior and corruption. The more effective a legal system a country possesses, the lower the corruption observed. The more competitive the infrastructure services, the lower the incidence of corruption.[31] As for the control variables, our model confirms the results of others that democratic reforms are indeed important checks on corruption; while the coefficient on the trade system index has the correct sign, but it is not statistically significant.

How can we explain the poor performance of two of the Market Institutions Indices? First, there is likely to be strong multicollinearity among the explanatory variables, as can be clearly seen in Table 6. In particular, the Bankruptcy Law Index is highly correlated with both the Index of Legal Effectiveness and the Trade System Index, conceivably reducing the former's explanatory power. Second, the Soft Budget Constraint Index and the Trade System Index are also highly correlated with each other. In addition, and perhaps more important in explaining why there is poor performance of the Soft Budget Constraint Index, is that it, itself, exhibits a weak bi-variate correlation with the measures of corruption, as indicated in Table 6. This presents an obvious challenge for future research—to identify the appropriate instrumental variables so to resolve these multicollinearity issues.[32]

There is still the issue as to whether these Market Institution Indices are capturing more effectively the quality of government than would GDP per capita; put differently, is the exclusion of GDP per capita reducing the explanatory power of our model? To assess this concern we included GDP per capita as explanatory variable in our regression. The results are described in the second column of Table 7. The results show that while the same three coefficients on the Market Institution Indices are still statistically significant, their explanatory power has decreased because of the strong correlation existing between these variables and the GDP variable. In addition, the coefficient on GDP per capita is not statistically significant. The overall explanatory power of the model also is not measurably enhanced. Thus, the introduction of GDP per capita does not improve our model's explanatory power.

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[29] The robustness of our results is confirmed by running the same regressions using both measures of corruption: the CPI and the Graft index. Also the results reported use the inverse of the Graft Index, to make the results more intuitive.

[30] This set of countries includes Eastern Europe and the Former Soviet Union. Vietnam, China and Mongolia are however excluded because of insufficient data.

[31] These results are robust to the use of the variable Subsidies or the Index of Barriers to Exit instead of the Soft Budget Constraint Index.

[32] Researchers have suggested few alternative instruments to address this issue – namely, the origin of the legal system and the latitudinal distance from the equator. The use of these variables however is more difficult to justify in the context of transition economies than of developing countries.

CONCLUSIONS

In recent years the fight against corruption has become a key element in the policy agenda for governments of transition economies, where this phenomenon threatens the overall reform process. Although extensive evidence on the links between corruption and economic growth has been collected, the causes and origins of corruption are still not fully understood, with few empirical studies on the nature and extent of the determinants of corruption available. Despite data limitations and the challenge of calibrating with precision the complex relationships among the determinants of corruption, our empirical exercise gives some support to our intuition that a well-established market system characterized by clear and transparent rules, fully functioning checks and balances, and a healthy competitive environment reduces rent-seeking opportunities and, in turn, the incentives for corruption. In particular, our investigation suggests that entry barriers, an effective legal system and well-developed and competitive infrastructure service providers play especially important roles in curbing corruption.

Clearly, the endogeneity between corruption and the progress of the reform process itself requires further empirical work and caution in the interpretation of our results. However, the policy implications that can derived from this initial exploration are unmistakable and highly relevant for the success of the reform process in transition economies. To reduce the incentives for illegal behavior and corruption, policy makers need to give utmost attention to the design and effective implementation of economic reforms that foster the development of basic market institutions.

A final observation. An item missing from the institutional issues on which we have focused is banking and financial sector reform. The lack of a sound, competitive and transparent financial system creates fertile ground for soft budget constraints and arrears and increases the intensity of barriers to entry and exit of real sector enterprises, which in turn leads to more rent-seeking opportunities and incentives for corruption. A more systematic analysis of the link between corruption and financial sector reform is an obvious priority for future research.

Table 1

Corruption

	Corruption Perception Index (1999)	Graft (1999)
Albania	2.3	-0.985
Armenia	2.5	-0.803
Azerbaijan	1.7	-0.998
Belarus	3.4	-0.654
Bosnia and Herz	n.a.	-0.353
Bulgaria	3.3	-0.557
Croatia	2.7	-0.464
Czech Republic	4.6	0.384
Estonia	5.7	0.593
Macedonia, Form	3.3	-0.517
Georgia	2.3	-0.744
Hungary	5.2	0.614
Kazakhstan	2.3	-0.869
Kyrgyz Republic	2.2	-0.763
Latvia	3.4	-0.264
Lithuania	3.8	0.034
Moldova	2.6	-0.387
Poland	4.2	0.492
Romania	3.3	-0.457
Russia	2.4	-0.616
Slovak Republic	3.7	0.030
Slovenia	6	1.023
Tajikistan	n.a.	-1.316
Turkmenistan	n.a.	-1.289
Ukraine	2.6	-0.892
Uzbekistan	1.8	-0.963

Sources:

CPI = Corruption Perception Index, Transparency International, 1999; range: 10, 0 (highly corrupted)

Graft Index = Kaufmann, Daniel, Aart Kraay and Pablo Zoido-Lobaton (1999a). "Governance Matters". Kaufmann, Daniel, Aart Kraay and Pablo Zoido-Lobaton (1999b). "Aggregating Governance Indicators".

Graft is measured on a scale of about -2.5 to 2.5, with higher values corresponding to lower corruption.

Table 2

Trade and Competition | Legal Environment

	Trade System (1998)	Competition Policy (1998)	Entry* Barriers (1998)	Exit** Barriers (1998)	Legal Extensiv. (1998)	Legal Effectiv. (1998)
Albania	4	2	n.a.	n.a	2	1.7
Armenia	4	2	2.32	n.a	3.7	2
Azerbaijan	3.3	1	2.79	5.7	3.3	2
Belarus	1	2	2.76	n.a	2	2
Bosnia and Herz	2.7	1	n.a.	n.a	2	1
Bulgaria	4.3	2	2.81	3.8	4	3.7
Croatia	4	2	2.66	n.a	4	2.7
Czech Republic	4.3	3	2.78	4.1	3.3	2.7
Estonia	4	2.7	2.18	3	3.3	3.7
Macedonia, Form	4	1	n.a.	n.a	3.7	3.7
Georgia	4	2	2.89	4.5	2	2
Hungary	4.3	3	2.45	2.8	4	3.7
Kazakhstan	3	2	2.84	4.6	3.3	3.3
Kyrgyz Republic	4	2	3.36	4.3	3.3	3
Latvia	4.3	2.7	n.a.	n.a.	3.7	3
Lithuania	4	2.3	n.a.	n.a.	4	3
Moldova	4	2	3.26	4.4	3.7	3
Poland	4.3	3	2.55	3.7	4	3
Romania	4	2	3.1	3.9	3.3	3.7
Russia	2.3	2.3	2.8	5.4	3.7	2.3
Slovak Republic	4.3	3	2.77	n.a.	3.3	3
Slovenia	4.3	2	2.36	4.4	4	4
Tajikistan	2.7	1	n.a.	n.a.	n.a.	n.a.
Turkmenistan	1	1	n.a.	n.a.	n.a.	n.a.
Ukraine	3	2	3.02	5.7	2	2
Uzbekistan	1	2	2.59	4.6	2.7	2.3

Sources:

EBRD, Transition Report, 1999

* Intensity of entry barriers is a composite of the six main barriers to entry and expansion as perceived by start-ups (higher value = higher barriers).

** Intensity of exit barriers is a soft budget index composed of subsidies and barter components (higher value = higher barriers)

Table 3

Liberalization and Competition

	Price Liberalization (1998)	Governance Index (1998)	Share of adm. Prices in CPI (97)	Soft Budget Index* (1998)	Subsidies** (1998)	Arrears*** (1998)	Bankruptcy Law Index (1998)
Albania	3	n.a.	n.a.	n.a.	n.a.	n.a.	1
Armenia	3	1.72	7	39	4	17	1.7
Azerbaijan	3	1.53	6	62	15.5	19	3.3
Belarus	1.7	1.57	27	7	27.5	14	2
Bosnia and Herz	3	n.a.	n.a.	n.a.	n.a.	n.a.	1
Bulgaria	3	1.38	14.4	19	6	12	3.7
Croatia	3	1.43		38	14.5	22	3.7
Czech Republic	3	1.59	13.3	37	14	4.5	3.3
Estonia	3	1.95	24	9	11	3	3.7
Macedonia, Form	3	n.a.	19.6	n.a.	n.a.	n.a.	4
Georgia	3	1.27	8.3	62	6	29	1.7
Hungary	3.3	1.98	15.9	14	23	4	3.7
Kazakhstan	3	1.27	n.a.	28	7.5	18	3
Kyrgyz Republic	3	0.85	n.a.	29	4.8	22	3.7
Latvia	3	n.a.	19.6	n.a.	n.a.	n.a.	3.3
Lithuania	3	1.54	n.a.	13	5.2	0	3
Moldova	3	0.82	n.a.	41	14.5	24	3
Poland	3.3	1.69	10.6	23	12	8.5	3.3
Romania	3	1.07	7	28	6.5	4	3
Russia	1.7	1.16	n.a.	35	14	20	2.7
Slovak Republic	3	1.65	14.9	40	14.5	12.5	3
Slovenia	3	1.95	20.4	32	11.5	9	4
Tajikistan	3	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Turkmenistan	2	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ukraine	3	1.24	n.a.	32	4	21	2
Uzbekistan	2	1.83	n.a.	21	15	9	2

Sources:

EBRD, Transition Report, 1999

* proportion of firms in a country that failed to pay all their taxes. Higher index value = softer budget contraints

** percentage of firms that report receiving state subsidies.

*** percentage of firms that say they had substantial arrears with the national or local government, or with state-owned utilities companies

Table 4

Infrastructure Monopolies

	Composite Infrastructure Rating (1998)	Tele communications (1998)	Electric Power (1998)	Railways (1998)	Roads (1998)	Water and waste water (1998)
Albania	1.8	1.3	2	2	2	1.3
Armenia	2.1	2.3	3	2	2.3	2
Azerbaijan	1.8	1.3	2	2	1.3	2
Belarus	1.1	2	1	1	2	1
Bosnia and Herz	n.a.	1.3	2	2	n.a.	1
Bulgaria	2.7	3	3	3	2.3	2
Croatia	2.3	2.3	2.3	2.3	2.3	3.3
Czech Republic	2.8	4	2	2.3	2.3	4
Estonia	3.3	4	3	4	n.a.	4
Macedonia, Form	2.2	2	2.3	2	n.a.	1.3
Georgia	2.4	2	3	3	2	n.a.
Hungary	3.8	4	4	3.3	3.3	4
Kazakhstan	2.4	2.3	3.3	2	2	1.3
Kyrgyz Republic	1.9	2	2.3	1.3	1	1
Latvia	2.9	3	3	3.3	2.3	3
Lithuania	2.6	3.3	2.3	2.3	2.3	3
Moldova	2.2	2.3	3	2	2	2
Poland	3.2	3.3	3	3.3	3.3	4
Romania	3.1	3	3	4	2.3	3
Russia	2.4	3	2	2.3	2	2.3
Slovak Republic	2.1	2.3	2	2	2.3	n.a.
Slovenia	2.9	2.3	2.3	3.3	3	4
Tajikistan	1.1	1.3	1	1	n.a.	n.a.
Turkmenistan	1.1	1	1	1.3	1	1
Ukraine	2	2.3	2.3	1.3	1.3	1.3
Uzbekistan	1.7	2	1	2	1	1

Sources:

EBRD, Transition Report, 1999

Table 5

Economic Development and Political Reform Indicators

	GDP per capita (1996)	Share of trade in GDP	Imports as % of GDP	Democratic Reform	Political Process	Independent Media
	US dollars*	1996*	1997**	1997**	1997***	1997***
Albania	816.7	21.4	35.6	4.69	4.5	4.75
Armenia	426	32.9	58.3	4.88	5.75	5.25
Azerbaijan	423	33.5	53	5.38	5.5	5.5
Belarus	1354	46.2	63.6	6.19	6.25	6.5
Bosnia and Herz	669	n.a.	n.a.	6.19	6	6.25
Bulgaria	1170	48.8	56.4	3.44	2.75	3.5
Croatia	4422	32.1	97.6	4.31	4.25	4.75
Czech Republic	5625	42.5	63.1	1.38	1.25	1.25
Estonia	2981	53.3	89.6	2	1.75	1.75
Macedonia, Form	1971	33.1	50.1	3.94	3.5	4
Georgia	845	14.1	n.a.	4.44	4.5	4.25
Hungary	4441	34.3	46	1.44	1.25	1.5
Kazakhstan	1274	31.1	37.5	5.31	5.5	5.5
Kyrgyz Republic	394.3	36.2	46.2	4.75	5	5
Latvia	2071	36.7	59.5	2.06	2	1.75
Lithuania	2127	48.9	65.1	1.81	1.75	1.5
Moldova	444.1	48.4	74.1	3.88	3.5	4.25
Poland	3486	21.2	30	1.38	1.25	1.5
Romania	1571	26.2	36.7	3.81	3.25	4
Russia	2910	18.3	20.8	4	3.5	4.25
Slovak Republic	3495	53.1	71	3.63	3.5	4
Slovenia	9439	46.7	58.4	1.81	2	1.75
Tajikistan	174	74	n.a.	5.75	5.75	6
Turkmenistan	424	83.1	n.a.	6.94	7	7
Ukraine	872	39.6	45.2	4.13	3.5	4.75
Uzbekistan	590	28.5	30.8	6.5	6.5	6.5

Sources: * "Transition Report, 1999", EBRD. ** The World Bank, 1999.

*** "Nations in Transit", 1997 and 1998, Freedom House International. This index is the unweighted average of five different indeces of political liberalization.

For all the 26 countries surveyed Freedom House rated political liberalization on a one-to-seven scale, with one representing the highest and seven the lowest level of progress.

**** "Nations in Transit", 1998, Freedom House International.

For all the 26 countries surveyed Freedom House used a one-to-seven scale, with one representing the highest and seven the lowest level of progress.

TABLE 6 : CORRELATION COEFFICIENTS BETWEEN CORRUPTION AND INSTITUTIONAL INDICATORS

Variable	GRAFT[a]	Trade System Index	Infrastructure Rating	Entry Barriers	Soft Budget Constraint	Legal Effectiveness	Bankruptcy Law Index	Democratic Reform Index	GDP per capita
GRAFT[a]	1	0.5529** (25)	0.7913** (25)	-0.5191** (19)	-0.346* (20)	0.5603** (24)	0.5183** (24)	0.88696** (25)	0.82321** (26)
Trade System Index		1	0.6893** (25)	-0.041 (19)	0.2199 (20)	0.4962** (24)	0.4734** (24)	-0.7233** (25)	0.3941** (26)
Infrastructure Rating			1	-0.3699 (19)	-0.2421 (20)	0.6892** (23)	0.5393** (23)	-0.8641** (25)	0.5568** (25)
Entry Barriers				1	0.2985 (19)	-0.1595 (19)	-0.0938 (19)	0.3482 (19)	-0.4793** (19)
Soft Budget Constraint					1	-0.4441** (20)	-0.20 (20)	0.271 (20)	-0.1185 (20)
Legal Effectiveness						1	0.8545** (24)	-0.5378** (23)	0.4905** (24)
Bankruptcy Law Index							1	-0.511** (23)	0.5208** (24)
Democratic Reform Index								1	-0.6774** (25)
GDP per Capita									1

Number of observations in parentheses
** significant at the 5%
* significant at the 10%
[a] Graft is measured on a scale of –2.5 to 2.5 with higher values corresponding to lower corruption. To make the results more intuitive however we use the inverse of Graft

TABLE 7 : THE IMPACT OF INSTITUTIONAL REFORMS ON CORRUPTION

Dependent: GRAFT[a]	(1)	(2)
Infrastructure Rating	0.498**	0.397*
	(2.8)	(1.81)
Soft Budget Constraint Index	-0.008	-0.004
	(-1.4)	(-0.57)
Entry Barriers	0.628**	0.51**
	(3.48)	(2.19)
Legal Effectiveness	-.0545**	-0.44*
	(3.17)	(-2.07)
Bankruptcy Law Index	0.077	0.0852
	(0.68)	(0.74)
Trade System Index	0.112	0.064
	(1.25)	(0.59)
Democratic Reform Index (1996)	0.445**	0.3754**
	(6.54)	(3.43)
GDP per capita		-0.00004
		(-0.82)
Observations	19	19
R^2	0.938	0.942

T statistics for "H0: parameter = 0" in parentheses.
** indicates statistical significance at 95% level, * at 90%.
[a] Graft is measured on a scale of –2.5 to 2.5 with higher values corresponding to lower corruption. To make the results more intuitive however we use the inverse of Graft

Figure 1. Soft Budget Constraints and Corruption

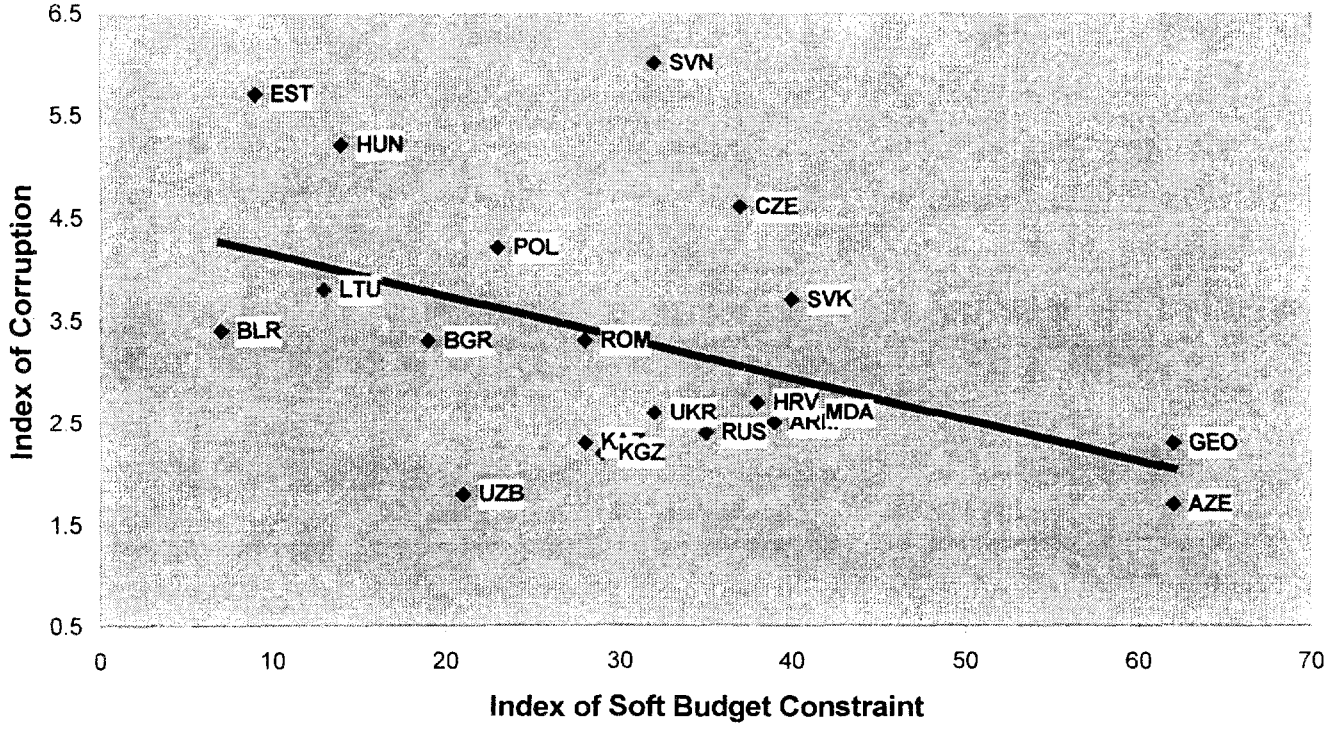


Figure 2. Arrears and Corruption

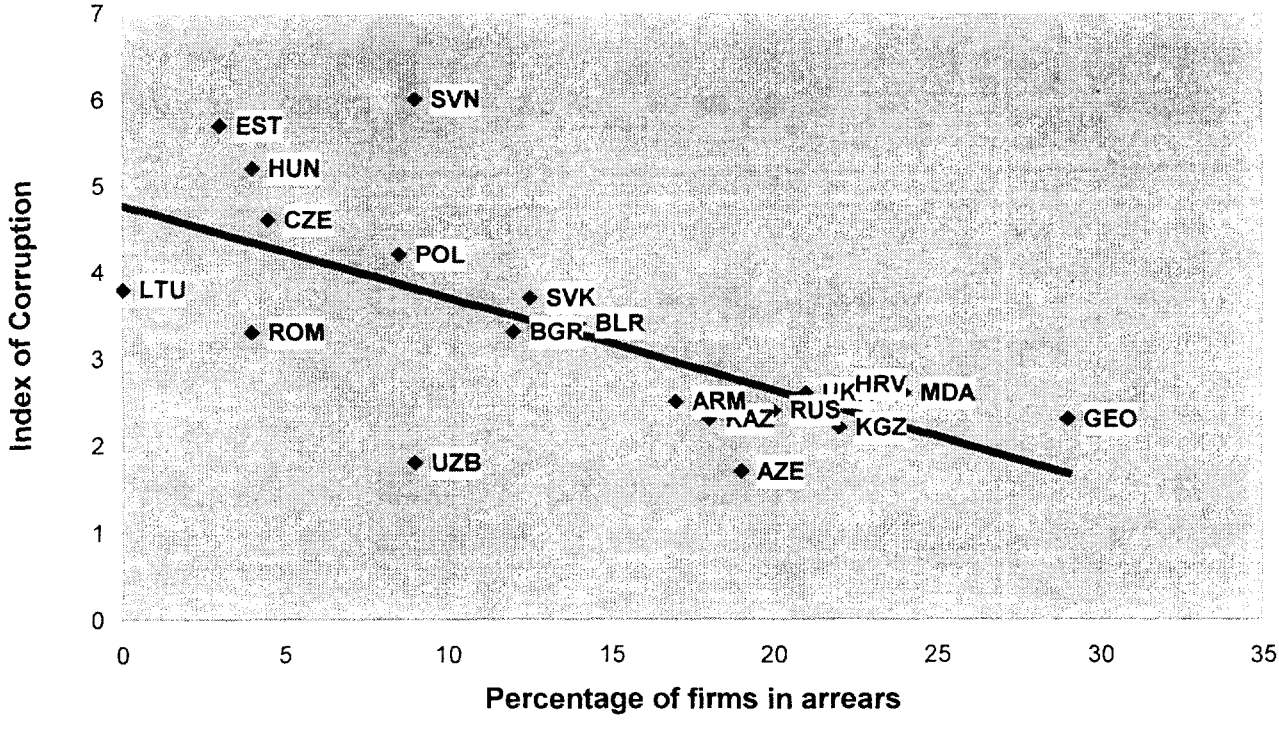


Figure 3. Entry Barriers and Corruption

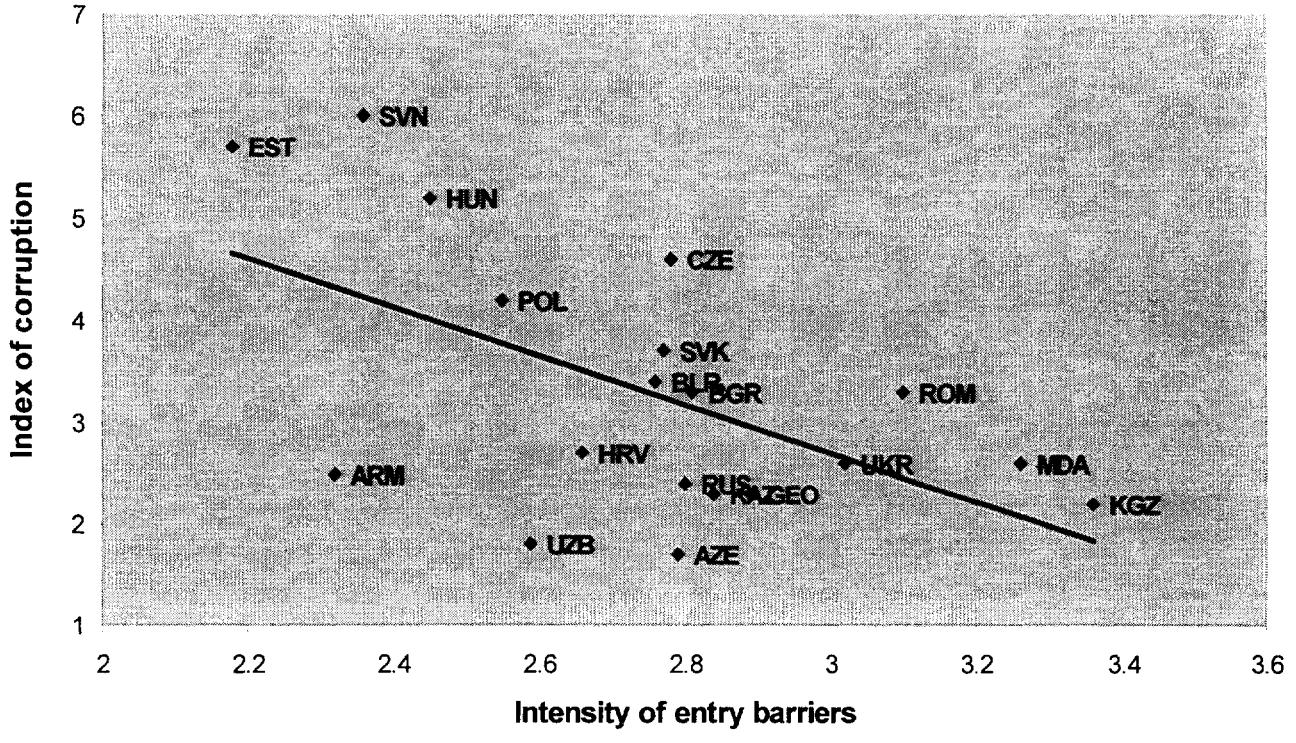


Figure 4. Exit Barriers and Corruption

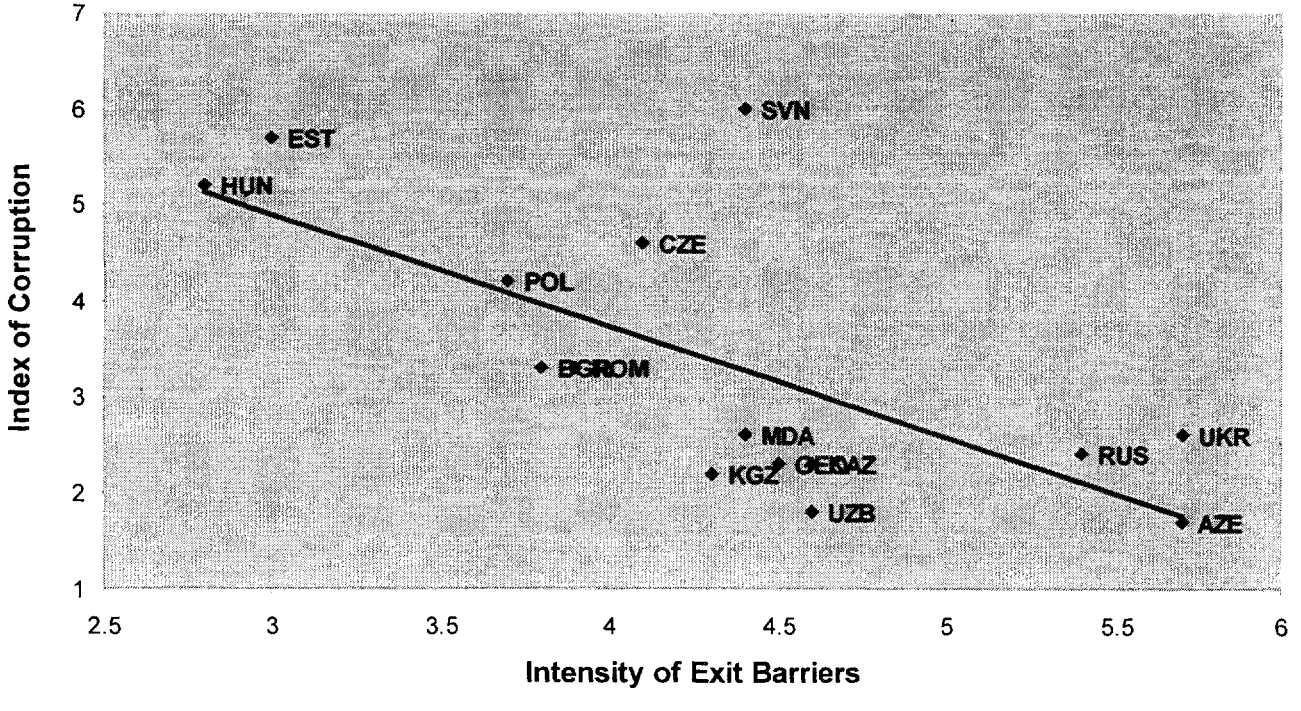


Figure 5. General Legal Extensiveness and Corruption

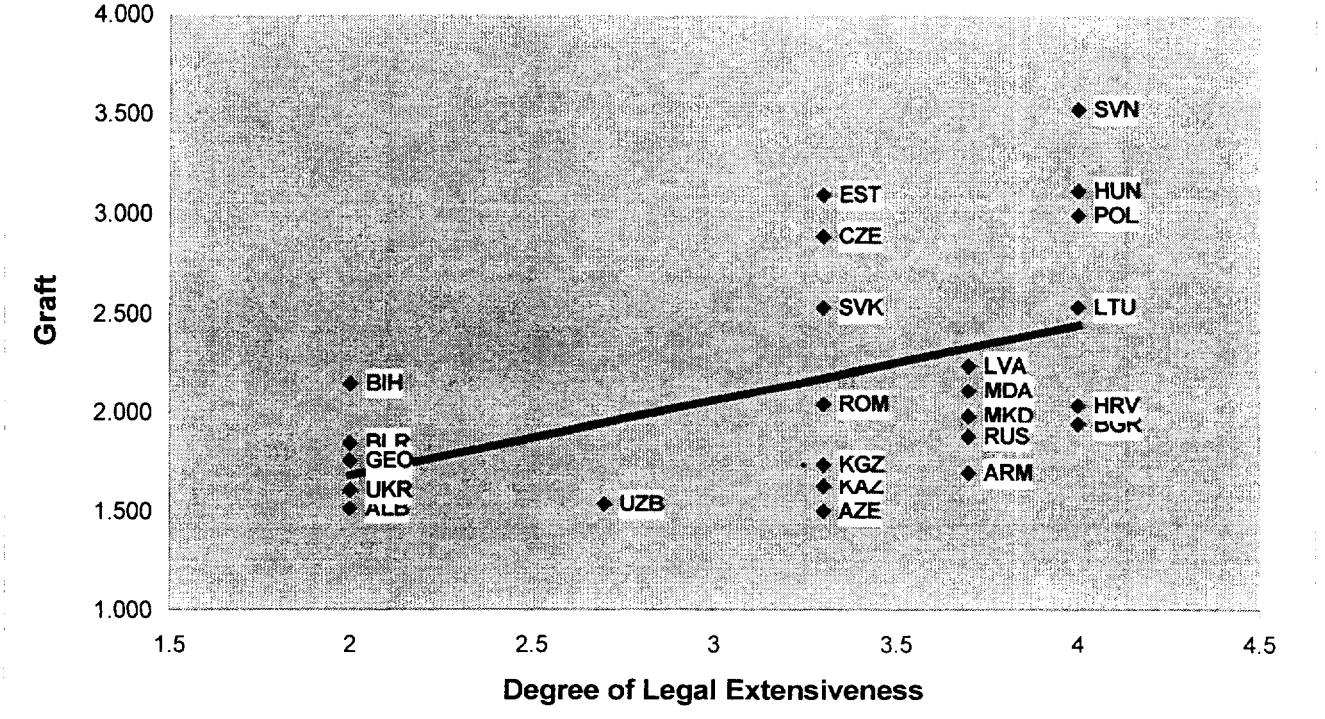


Figure 6. General Legal Effectiveness and Corruption

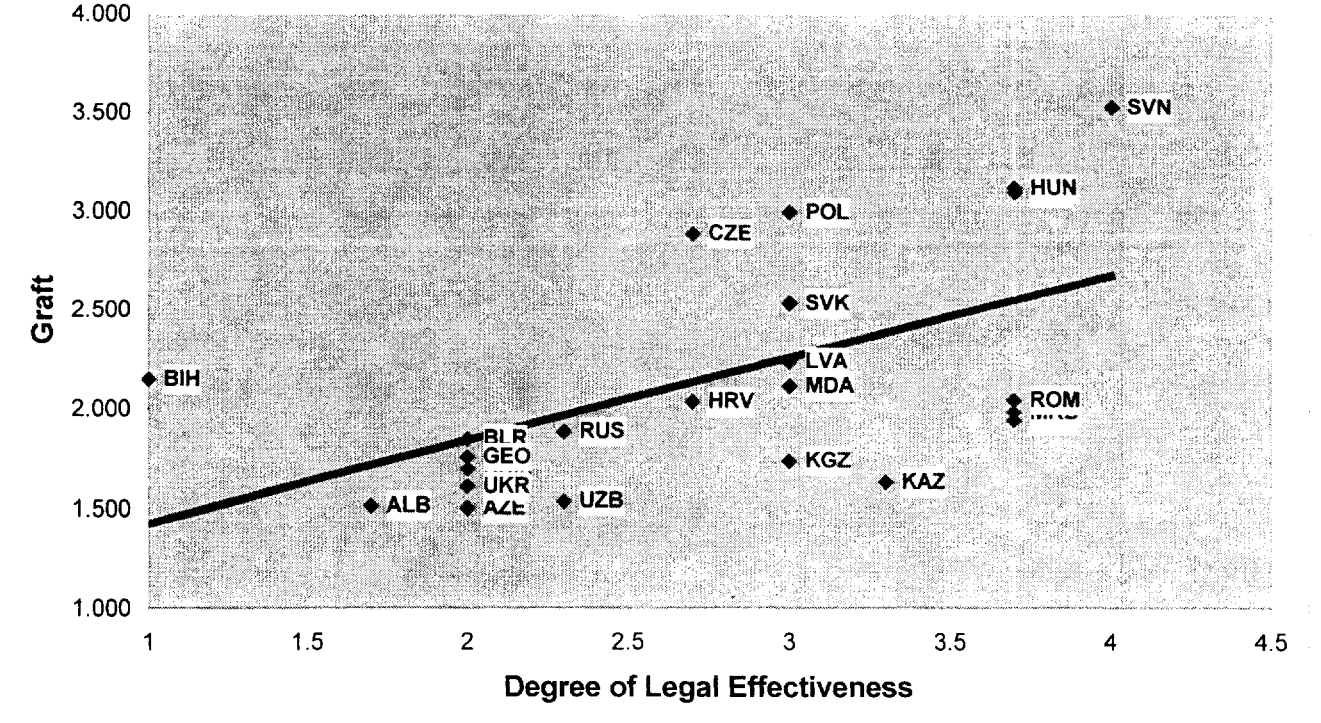


Figure 7. Infrastructure Monopoly Reform and Corruption

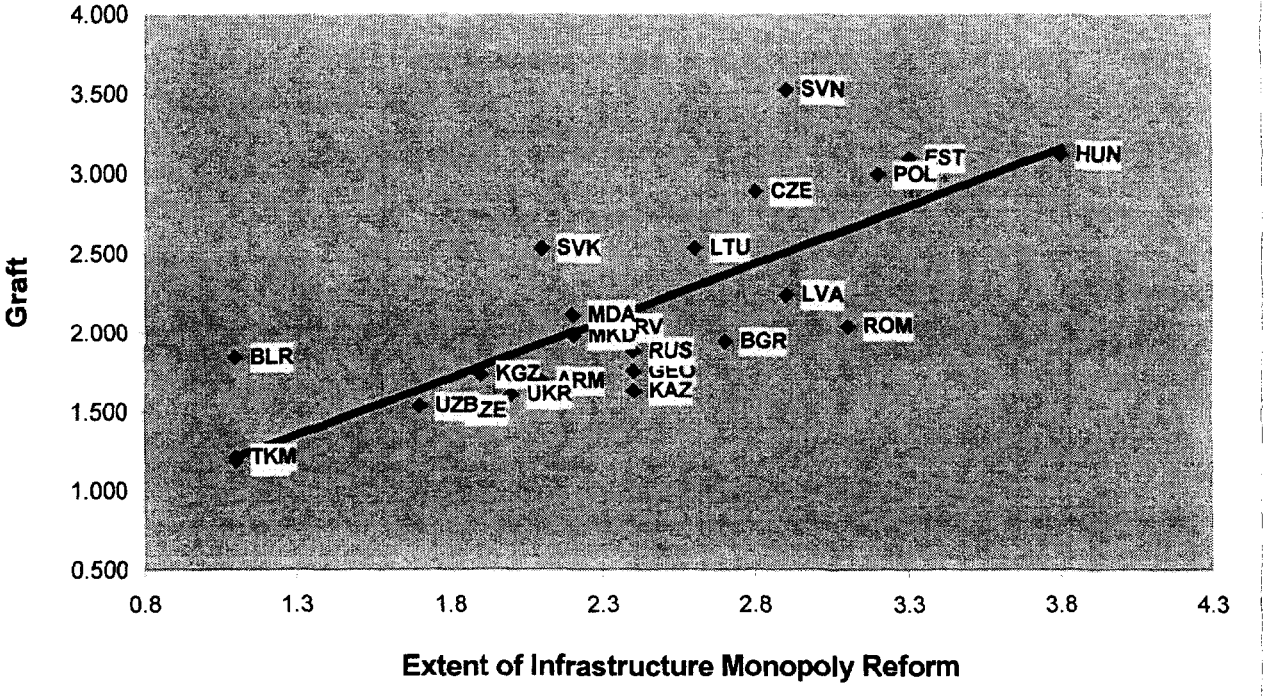


Figure 8. Corporate Governance and Corruption

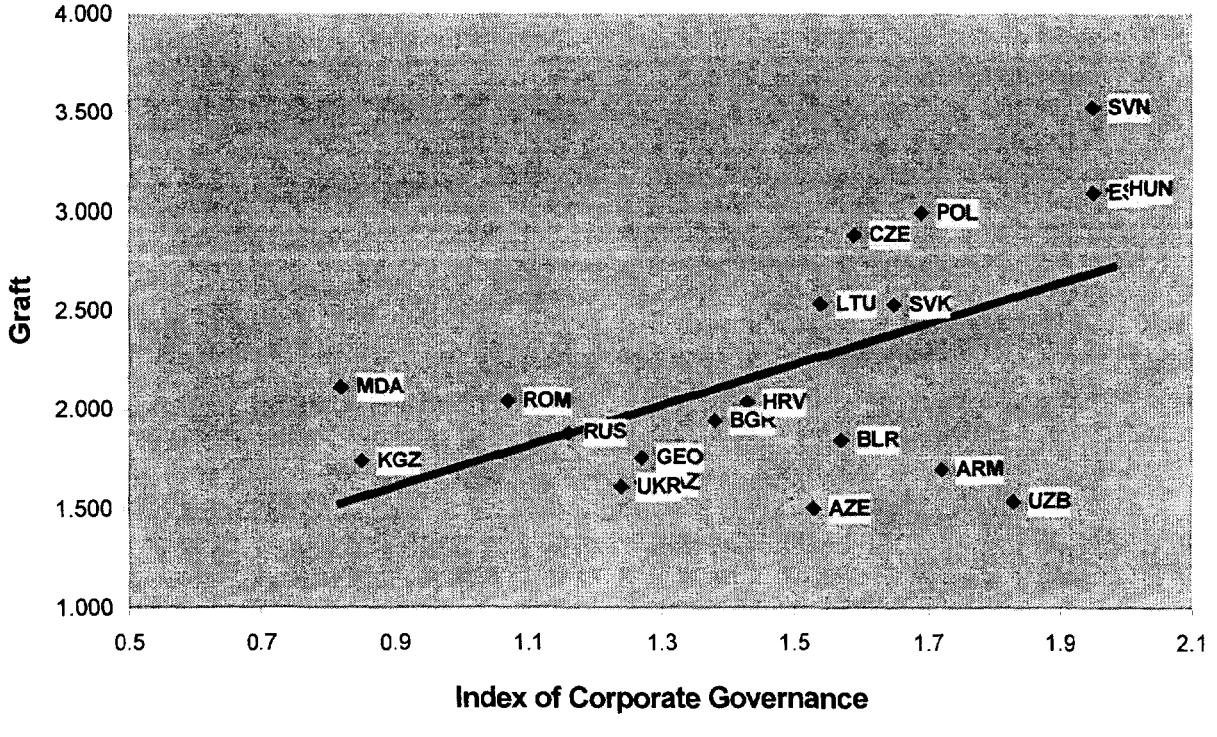


Figure 9. Development of Bankruptcy Law and Corruption

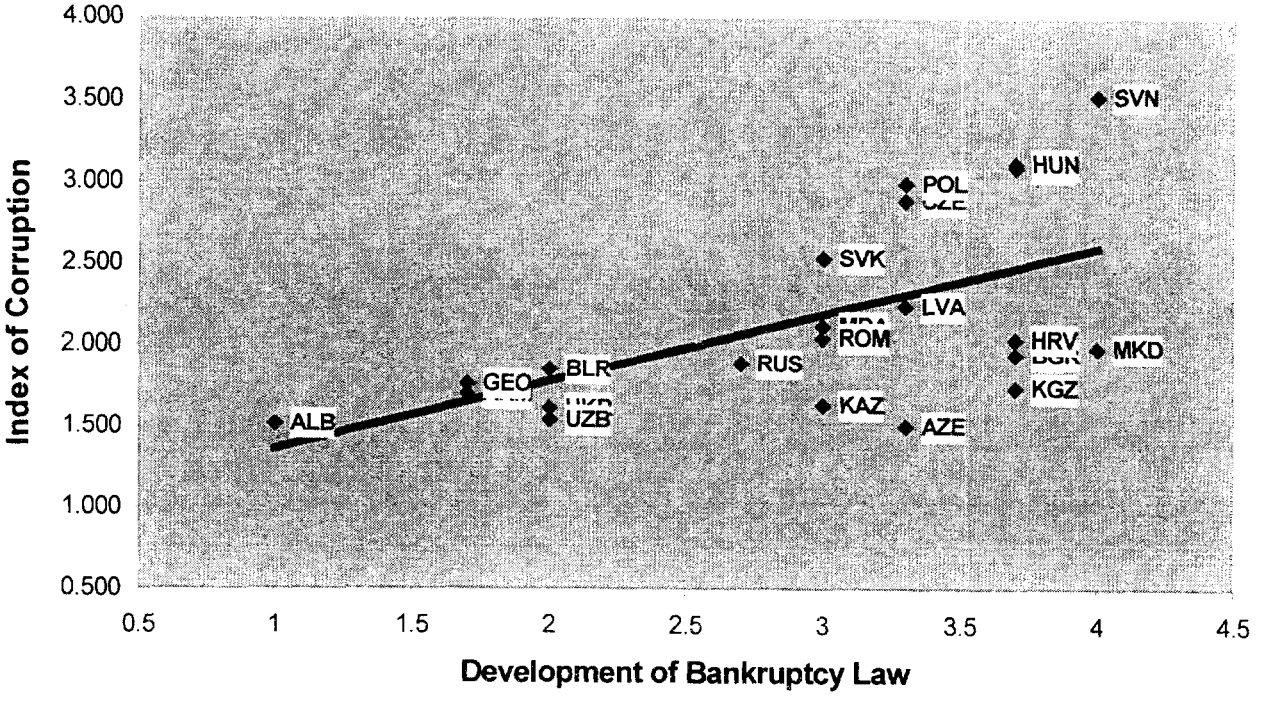
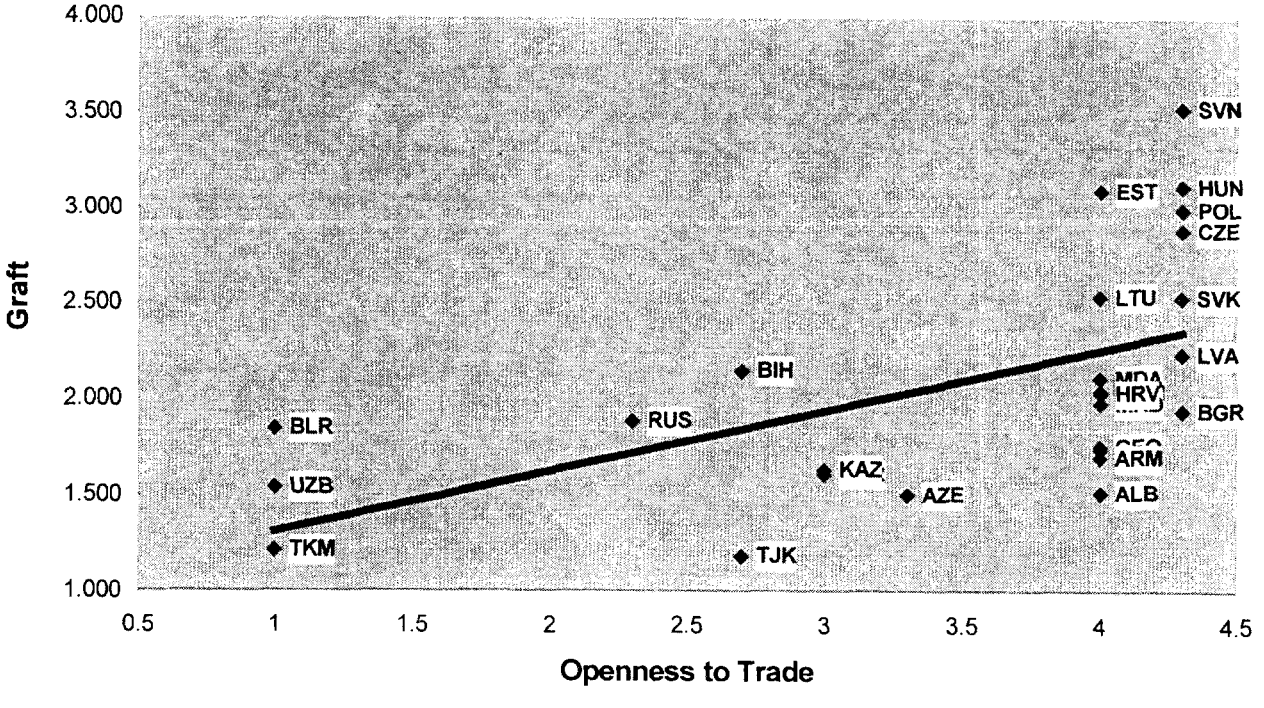


Figure 10. Openness to Trade and Corruption



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